

REMARKS/ARGUMENTS

Claims 1-20 are pending in the present application. By this reply, claims 17-20 have been added. Claims 1, 7, 8 and 11 are independent claims.

The specification and the Abstract have been revised to correct minor informalities and to clarify the invention according to U.S. practice. These modifications do not add any new matter to the disclosure.

35 U.S.C. § 102 Rejection

Claims 7, 8, and 11-13 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Wistendahl (WO 97/12342). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Wistendahl is directed to an interactive video system. As pointed out by the Examiner at page 12, lines 23-35 of Wistendahl, Wistendahl discloses that when a user clicks on an object or actor displayed on the screen, trivia information associated with the selected item is displayed in a pop-up window or an overlay display. However, Wistendahl does not disclose, *inter alia*, displaying simple data information, wherein the simple data information includes a summary version of data information and television picture size information identify a picture size of the general television picture to be displayed with a detailed version of the data information, as required by independent claim 7. Independent claims 8 and 11 also contain similar features. In Applicants' embodied invention as shown in, e.g., Figs. 6A and 6B,

the summary information and the display size information (TV:40%) are displayed as part of the information window along with the general television picture.

Therefore, Wistendahl does not teach or suggest at least the above-identified features recited in independent claims 7, 8 and 11 and their dependent claims (due to their dependency). Accordingly, the rejection should be withdrawn.

35 U.S.C. § 103 Rejection

Claims 1-6, 10, 14 and 16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Wistendahl in view of Emens et al. (U.S. Patent No. 6,564,208). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Regarding independent claim 1, Wistendahl is directed to displaying trivia information associated with each selected object or actor displayed. But Wistendahl nowhere discloses the feature of displaying both first and second selectors on a screen when the data information is detected, where the first selector is for displaying a summary version of the HTML document and the second selector is for displaying a detailed version of the HTML document, as required by independent claim 1. Emens et al. does not overcome this deficiency of Wistendahl since Emens merely displays summary information (22) as part of a website search result page as shown in Fig. 1. Thus, even if

the references are combinable, assuming *arguendo*, the combination of references would still fail to teach or suggest the invention as recited in independent claim 1 and its dependent claims (due to their dependency).

Regarding claims 10, 14 and 16 which depend from independent claims 8 and 11, Wistendahl fails to teach or suggest the invention as recited in independent claims 8 and 11 as discussed above. Further, Emens et al. does not overcome this deficiency of Wistendahl since Emens is merely relied on for displaying a summary information on a website search result page and has nothing to do with the presently embodied invention. Thus, even if the references are combinable, assuming *arguendo*, the combination of references will not teach or suggest the invention as recited in independent claims 8 and 11 from which claims 10, 14 and 16 depend. Accordingly, the rejection should be withdrawn.

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Wistendahl in view of Conrad et al. (U.S. Patent No. 6,564,208). This rejection, insofar as it pertain to the presently pending claims, is respectfully traversed.

As discussed above, Wistendahl does not teach or suggest the features recited in independent claim 8 from which claim 9 depends. Further, Conrad et al. does not overcome this deficiency of Wistendahl since Conrad is merely relied on for displaying a temporary window as translucent. Thus, even if the references are combinable, assuming *arguendo*, the combination of references

will not teach or suggest the invention as recited in claim 8 and claim 9 (due to its dependency). Accordingly, the rejection should be withdrawn.

CONCLUSION

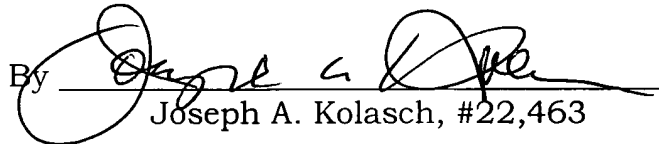
For the foregoing reasons and in view of the above clarifying amendments, Applicants respectfully request the Examiner to reconsider and withdraw all of the objections and rejections of record, and earnestly solicit an early issuance of a Notice of Allowance.

Should there be any outstanding matters which need to be resolved in the present application, the Examiner is respectfully requested to contact Esther H. Chong (Registration No. 40,953) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Enclosures: Abstract of the Disclosure
Substitute Specification with a marked-up copy thereof

ABSTRACT OF THE DISCLOSURE

A data information display method and apparatus for a data broadcasting receiver are provided. The method includes tuning signals received through an antenna and detecting whether or not data information is received among the signals tuned by the tuner; displaying a general television picture when the data information is not detected; parsing a HTML document among the data information when the data information is detected; displaying both first and second selectors on a screen when the data information is detected, the first selector for displaying a summary version of the HTML document of the data information, the second selector for displaying a detailed version of the HTML document; extracting summary information from the parsed HTML document; and displaying simple data information on the screen by using the extracted summary information in response to a selection of the first selector.

DATA INFORMATION DISPLAY METHOD OF DATA BROADCASTING RECEIVER AND APPARATUS THEREOF

BACKGROUND OF THE INVENTION

1. Field of the Invention

[001] The present invention relates to a data information display method of a data broadcasting receiver and an apparatus thereof, and in particular to a data information display method of a data broadcasting receiver and an apparatus thereof which is are capable of displaying data information corresponding to the present audition television picture as a simple data information picture without changing the size of the present audition television picture.

2. Description of the Prior Art

[002] Generally, in a digital data broadcasting, additional data information is transmitted from a transmitter to a receiver with an A/V (Audio/Visual) stream for a television by using digital signals.

[003] In the digital data broadcasting, the transmitter compacts separately the video and audio, encodes it, multiplexes it, and transmits the data stream to the receiver, ~~then~~. Then the receiver receives the data stream, corrects all errors, decodes it, and demultiplexes it into the original video and audio.

[004] In order to watch the digital data broadcasting, an additional data processing S/W program for a digital broadcasting (hereinafter, it is referred to as a data browser) is required for the receiver in order to process the A/V stream and data and to support collectively various kinds of

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user support services, and the format and function of the data browser is similar to the format and function of an internet web browser.

[005] The internet web browser is a S/W program based on the internet, ~~it.~~ It comprises a plurality of internet protocols, a HTML (Hyper Text Markup Language) document, a CSS (Cascading Style Sheets) Parser, a Java Script, a JAVA related engine, a formatting function for display, and its own program, and it supports most of e-mail protocols.

[006] In addition, basic functions of the data browser used for the data information display apparatus of the data broadcasting receiver will now be described.

[007] The data browser judges whether or not data is received related to the present audition broadcasting, detects the data when the data is received, informs the data ~~receiving receipt~~ to a viewer by displaying an icon on a screen, and prepares a parsing, formatting, displaying of the received data information.

[008] After that, when the viewer wants to watch the data information receiving at the present and selects a "television and data broadcasting simulcast audition" item by using a remote-controller or an external input device, the data information picture is displayed, ~~when.~~ When the viewer does not watch the receiving data information, the present audition general television picture is displayed.

FIG. 1**[009]** FIG. 1 is a block diagram illustrating the conventional data information display apparatus of the data broadcasting receiver, ~~it.~~ It comprises a tuner 10 for tuning signals received through an antenna, an A/V decoder unit 20 for converting the signal tuned on the tuner 10 into an A/V stream, a screen 30 for displaying the A/V stream outputted from the A/V decoder unit 20 ~~on a screen~~, a data receiving unit 40 (listener) for searching whether there is the data information among the signals tuned on the tuner 10, and a PE (Presentation Engine) unit 50 for parsing and formatting the data information detected by the data receiving unit 40 and outputting

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the data information having the displayable format to the screen 30.

[010] Herein, the PE unit 50 comprises a user interface 57 for ~~being inputted~~ receiving an input signal of the viewer, a parsing unit 51 for ~~being inputted~~ receiving the user input signal through the user interface 57 and parsing the data information outputted from the data receiving unit 40, a formatting unit ~~63~~ 53 for formatting the data information outputted from the parsing unit 51 in order to display, and a display unit 55 for processing the data information formatted on the formatting unit ~~63~~ 53 so as to have the displayable format and transmitting it to the screen 30.

[011] Herein, the parsing unit 51 parses the data information outputted from the data receiving unit 40 by using the HTML (Hyper Text Markup Language) document, CSS (Cascading Style Sheet) Parser, Java Script ~~ect.~~

, etc.

[012] The operation of the data information display apparatus of the general data broadcasting receiver having the above-mentioned construction will now be described.

[013] First, the signal received through the antenna is tuned on the tuner 10, the tuned A/V signal is outputted to the A/V decoder unit 20, and the A/V decoder unit 20 converts the tuned signal into the A/V stream. The A/V stream is displayed on the screen 30.

[014] Meanwhile, the data receiving unit 40 detects whether there is the data information among the signals tuned on the tuner 10, and it stores it when the data information is detected. After that, when the viewer requests the data information output through the user interface 57 while the data receiving unit 40 receives the data information, the parsing unit 51 detects and parses the data information stored on the data receiving unit 40, and outputs the parsed data information. And, the formatting unit ~~63~~ 53 formats the data information outputted from the parsing unit 51, and then the display unit 55 receives the data information formatted on the formatting unit ~~63~~ 53, processes the formatted data so as to have the displayable format, and transmits it to the screen 30.

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FIG.2[015] FIG. 2 is a flow chart illustrating the general data information display method of the data broadcasting receiver. First, it is detected whether the data information is received among the signals tuned on the tuner 10 through the antenna ~~ST1, the~~(ST1). The general television picture is displayed when the data information is not detected ~~ST6, when~~(ST6). When the data information is detected, as depicted in ~~FIG.3a~~ FIG. 3A, the icon (for example, 'i') for ~~informing the indicating the presence of~~ data information receiving is displayed on the right upper portion of the screen 30 ~~ST2~~(ST2). At the same time, in order to output the received data information to the screen 30, the parsing, formatting, displaying are prepared ~~ST3, when~~(ST3). When the viewer selects the data information ~~ST4~~(ST4), in other words, when the viewer selects the "television and data information simulcast audition" icon through the remote-controller or external input device, as depicted in ~~FIG.3b~~ FIG. 3B, the data information is displayed on the screen 30 ~~ST30~~.

~~(ST5).~~

[016] Meanwhile, when the viewer does not select the "television and data broadcasting simulcast audition" icon, the present audition general television picture is continually displayed ~~ST6.~~(ST6).

~~FIG.3a and 3b~~[017] FIGs. 3A and 3B illustrate the general data information display method of the data broadcasting receiver, where the construction of the picture can be changed according to the setting of the viewer.

[018] Generally, because the switching of the picture is differently defined according to the received data information, when the data information picture is displayed, the size of the present audition general television picture decreases or only the data information picture is displayed. ~~As like this~~ But, the viewer can check the size of the data information picture only after switching into the data information picture.

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[019] In addition, when the general data information display apparatus of the data broadcasting receiver generates the icon for ~~informing~~ indicating the data information ~~receiving receipt~~, before the viewer selects the "television and data broadcasting simulcast audition" item by using the remote-controller or external input device, the viewer can not know the content of the data information received at the present.

[020] In addition, when the viewer selects the "television and data broadcasting simulcast audition" item by using the remote-controller or external input device, the present audition television picture is switched into the television picture and data information picture, ~~herein~~ wherein an interrupt for replacing the present audition television picture occurs because the size of the present audition television picture has to be adjusted again. Accordingly, the present audition television picture can not be displayed for a certain time.

[021] Therefore, when the present audition television picture is very an important information, the viewer ~~may probably would~~ not switch it into the data information picture, ~~and~~. Further, it is impossible ~~also~~ to use the data information after a certain time, ~~accordingly~~. Accordingly the viewer can not check the data information finally.

SUMMARY OF THE INVENTION

[022] Accordingly, the an object of the present invention is to provide a data information display method of a data broadcasting receiver and an apparatus thereof which is are capable of knowing the present receiving data information even when a user does not select a "television and data broadcasting simulcast audition" item by using a remote-controller or an external input device.

~~The other~~[023] Another object of the present invention is to provide the data information display method of the data broadcasting receiver and apparatus thereof which is are capable of watching the received data information simply while the viewer watches the present

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audition television picture, and storing separately the received data information in order to use later in case of need.

~~The other~~[024] Another object of the present invention is to provide the data information display method of the data broadcasting receiver and apparatus thereof which is are capable of helping the viewer select the picture switching by displaying the television picture size information on a simple data information picture in advance when the viewer selects to switch into the simple data information picture.

[025] In order to achieve the above-mentioned and other objects, the data information display apparatus of the data broadcasting receiver according to an embodiment of the present invention comprises a tuner 40 for tuning signals received through an antenna, an A/V decoder unit 20 for converting the signal tuned on the tuner 40 into an A/V stream, a screen 30 for displaying the A/V stream outputted from the A/V decoder unit 20 on a screen, a data receiving unit 40(listener) for searching whether there is the data information among the signals tuned on the tuner 40, and a PE (Presentation Engine) unit 60 for parsing and formatting the data information detected by the data receiving unit 40 and outputting the data information having the displayable format to the screen 30.

~~Herein, the~~[026] The PE unit 60 ~~comprises~~ includes a user interface 69 for ~~being~~ inputted receiving an input signal of the viewer, a parsing unit 64 for ~~being inputted~~ receiving the user input signal through the user interface unit 69 and parsing the data information outputted from the data receiving unit 40, a summary information extracting unit 67 as an additional module of the parsing unit 64 for extracting the abridged data content of the data information, a formatting unit 63 for formatting the data information outputted from the parsing unit 64 in order to display, and a display unit 65 for processing the data information formatted on the formatting unit 63 so as to have the displayable format and transmitting it to the screen 30.

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~~Herein, the~~[027] The parsing unit 64 parses the data information outputted from the data receiving unit 40 by using the HTML (Hyper Text Markup Language) document, CSS (Cascading Style Sheet) Paser, Java Script ~~ect.~~

, etc.

[028] In order to achieve the above-mentioned and other objects, in the simple data information display method according to the present invention, it is detected whether the data information is received, ~~when.~~ When the data information is not detected, the general television picture is displayed, ~~when.~~ When the data information is detected, an icon for informing the data information receiving is displayed on a screen.

[029] After that, when the viewer selects the simple data information picture through the remote-controller or external input device, each HTML document among the data information outputted from the data receiving unit 40 is parsed, the title information of the each HTML document and the picture display size information are extracted, the information of the each linked document is extracted by using the extracted data information, and the simple data information display picture is constructed and displayed by using all the all extracted information.

[030] These and other objects of the present application will become more readily apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.4[031] FIG. 1 is a block diagram illustrating the general data information

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display apparatus of a data broadcasting receiver.

FIG.2[032] FIG. 2 is a flow chart illustrating the general data information display method of the data broadcasting receiver.

FIG.3a[033] FIGs. 3A and ~~3b~~ 3B illustrate the general data information display method of the data broadcasting receiver.

FIG.4a[034] FIGs. 4A and ~~4b~~ 4B are block diagrams illustrating a data information display apparatus of a data broadcasting receiver according to the present invention.

FIG.5[035] FIG. 5 is a flow chart illustrating a simple data information display method of the data broadcasting receiver according to the present invention.

FIG.6a[036] FIGs. 6A and ~~6b~~ 6B illustrate the data information display method of the data broadcasting receiver according to the embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED ~~EMBODIMENT~~ EMBODIMENTS

FIG.4a and 4b[037] FIGs. 4A and 4B are block diagrams illustrating a data information display apparatus of a data broadcasting receiver according to an embodiment of the present invention.

[038] As depicted in ~~FIG.4a~~ FIG. 4A, the data information display apparatus of the data broadcasting receiver according to the present invention comprises a tuner 10 for tuning signals received through an antenna, an A/V decoder unit 20 for converting the signal tuned on the tuner 10 into an A/V stream, a screen 30 for displaying the A/V stream outputted from the A/V decoder unit 20 ~~on a screen~~, a data receiving unit 40 (listener) for searching whether there is ~~the~~ data information among the signals tuned on the tuner 10, and a PE (Presentation Engine) unit 60 for parsing and formatting the data information detected by the data receiving unit 40 and outputting the data information having the displayable format to the screen 30.

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[039] Herein, the PE unit 60 ~~comprises~~ includes a user interface 69 for ~~being-inputted~~ receiving an input signal of the viewer, a parsing unit 61 for ~~being-inputted~~ receiving the user input signal through the user interface ~~unit 69~~ and parsing the data information outputted from the data receiving unit 40, a summary information extracting unit 67 for extracting the abridged data information of the data information, a formatting unit 63 for formatting the data information outputted from the parsing unit 61 in order to display, and a display unit 65 for processing the data information formatted on the formatting unit 63 so as to have the displayable format and transmitting it to the screen 30.

[040] Herein, as depicted in ~~FIG. 4A~~ FIG. 4B, the parsing unit 61 parses the data information outputted from the data receiving unit 40 by using the HTML (hyper Text Markup Language) document, CSS (Cascading Style sheet) Parser and Java Script, etc. and is connected to the summary information extracting unit 67 for extracting the title information, display size information, and related link information by using the HTML document.

[041] The operation of the data information display apparatus of ~~the general~~ a data broadcasting receiver having the above-mentioned construction will now be described according to an embodiment of the present invention.

[042]—

First, the signal received through the antenna is tuned on the tuner 10, the tuned A/V signal is outputted to the A/V decoder unit 20, and the A/V decoder unit 20 converts the tuned signal into the A/V stream. The A/V stream is displayed on the screen 30.

[043] Meanwhile, the data receiving unit 40 detects whether or not there is the data information among the signals tuned on the tuner 10, and it stores it when the data information is detected. After that, when the viewer requests the data information output through the user interface 57 69 while the data receiving unit 40 receives the data information, the parsing unit 61

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detects and parses the data information stored on the data receiving unit 40. The summary information extracting unit 67 connected to the parsing unit 61 extracts the abridged data information among the HTML data information parsed on the parsing unit 61. And, the formatting unit 63 formats the data information outputted from the parsing unit 54, 61, and the display unit 55 ~~is inputted~~ 65 receives the data information formatted on the formatting unit 63, processes the formatted data so as to have displayable format, and transmits it to the screen 30.

FIG.5[044]

FIG. 5 is a flow chart illustrating the data information display method of the data broadcasting receiver according to the present invention. First, it is detected whether the data information is received among the signals tuned on the tuner 10 through the antenna ~~ST10,~~ the(ST10). The general television picture is displayed when the data information is not detected ~~ST80, when(ST80).~~ When the data information is detected, an icon for ~~informing~~ indicating the data information ~~receiving receipt~~ is displayed on the picture.

[045]

After that, when the viewer selects the simple data information picture through the remote-controller or external input device, the HTML document among the data information (HTML and additional title) outputted from the data receiving unit 40 is parsed ~~ST20(ST20).~~ In addition, the title information ~~ST30(ST30)~~ and television size information ~~ST40(ST40)~~ of ~~the~~ each parsed HTML page, and linked data, and title information of the linked document are extracted ~~ST50(ST50).~~ As depicted in ~~FIG.6a,~~ the FIG. 6A, each link information such as a domestic race, a foreign race, race terms is constructed as a certain icon having a button shape by using all the ~~all~~ extracted information, ~~the each.~~ Each data title information corresponding to ~~the~~ each icon is linked and the simple data information display picture is constructed ~~ST60(ST60),~~ and the simple data information display picture is displayed on the screen 30 as a font having a translucent ground in order to make ~~the each button uncover the television picture ST70.~~

(ST70).

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[046] Herein, the data of ~~the~~ ST30 are data used on the simple data information display window, and the data of ST50 is are used for making the link buttons of the simple data information picture.

[047] Hereinafter, the operation will now be described in more detail, ~~the~~. The HTML data of ST20 is parsed on the PE unit 60. The title information of ST30 is displayed as a tag same with the <title> inside of ~~the~~ each HTML document, ~~accordingly~~. Accordingly the PE unit 60 can use the information by parsing it. In addition, the data of ST40 is defined in ~~the~~ each HTML file, ~~accordingly~~. Accordingly the PE unit 60 can know the size of the television picture to be displayed. In addition, the PE unit 60 can know the link information of ST50 while parsing the HTML file. Accordingly, when the viewer selects the simple data information picture, the PE unit 60 constructs the simple data information picture and displays it.

[048] When the viewer watches the present television picture and a data broadcasting informing icon is displayed on the screen 30, the viewer can select the "simple data information picture" or "data information picture" by using the remote-controller ~~and~~ or other external input device. When the viewer selects the "simple data information picture", the present television picture is displayed as it is, and the font having the translucent ground for informing the title information, television display size information, and related link information is displayed on the present television picture without switching the television picture.

[049] In addition, the information displayed on the simple data information picture is the simple information such as the title information among the data information.

[050] When the viewer watching the simple data information picture selects the "data information picture" by using the remote-controller or external input device in order to watch the data information picture, the simple data information picture is directly switched into the data information picture.

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[051] In addition, because the simple data information picture displays the display size of the present broadcasting television picture on the data information picture, the viewer ~~can be~~ helped to determine whether he/she ~~switches~~ wants to switch into the data information picture through in view of the display size information about the present broadcasting television picture. In other words, the viewer can select the picture switching considering the display size of the present broadcasting television picture to be switched.

[052] In addition, when the viewer does not want to switch the present audition television picture and also does not want to miss the present receiving data information, the present invention can store the present receiving data by selecting a storage button displayed on the right side of the picture. The data is stored on a built-in memory region not on a special device such as a digital VCR, ~~it.~~ It can be possible because the present receiving data is the data information not the A/V content. Accordingly, the viewer can search the stored data as occasion demands.

FIG. 6b**[053]** FIG. 6B illustrates the an example of a picture when the viewer selects the domestic race among the linked information of ~~FIG. 6a.~~

FIG. 6B.

[054] The domestic race link information informs a vehicle regulation, a race event, a stadium scale, and a stadium map information through an information window. Likewise, when the viewer selects the foreign race, race terms and the information corresponding to the foreign race are displayed on the information display window.

[055] Therefore, the viewer can watch the simple data information picture, data information picture or general television picture according to his/her ~~select, when~~ selection. When the viewer selects the simple data information picture, the viewer can generally know the present receiving data information without switching the present audition television picture.

[056] As described above, the data information display method of the data broadcasting

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receiver and the apparatus thereof according to the present invention is are capable of helping the viewer to select the picture switching by informing in advance the present audition television picture size to be displayed with the data information picture in the data information picture switching, accordingly. Accordingly the viewer can watch the present audition television picture faithfully while using the data, can separately store the data information, and can use it as occasion demands.